GYPSY MOTH:
A MAJOR PEST OF TREES

IDAHO DEPARTMENT OF LANDS

State Forester Forum

Background

The gypsy moth is considered to be the most important defoliating insect of hardwood trees in the Eastern United States. A French naturalist who was trying to develop a hardy strain of silkworm introduced it into the Boston area from Europe in 1869. Several of the moths escaped in 1870 and within ten years, they had established a viable population in the local area. Lacking their native European natural control agents, they spread rapidly and by 1889, this insect had defoliated over 230,000 acres of forest and shade trees. Despite the expenditure of millions of dollars in control efforts, this pest has continued to spread and now has caused millions of acres of defoliation, primarily in the northeastern states.

How did it get to Idaho?

The gypsy moth is a notorious hitchhiker. The female moth lays her eggs on any solid surface including outdoor furniture, recreational vehicles, firewood, toys, etc. When these objects are later moved, gypsy moths can be transported for long distances. This has been the main source of gypsy moth infestations in Idaho.

Why is the gypsy moth a serious pest?

Gypsy moth caterpillars will feed on more than 500 kinds of plants. Preferred hosts in Idaho include paper birch, hawthorne, plum, oaks, apple, alder, aspen, filbert, and willow. Recent studies have also found that it can survive and reproduce on Douglas-fir, western hemlock, lodgepole pine, and other western conifers.

This insect has a tremendous capacity to increase in numbers, thus populations can rapidly build to large infestations causing widespread defoliation, which weakens, and sometimes kills trees. Weakened trees often become the targets of other killing insects and diseases.

Defoliation also reduces the aesthetic, recreational, and economic value of forests, parks, and wooded homesites. It can also impact stream side vegetation contributing to degradation of water quality.

The greatest economic threat to Idaho comes from the potential for newly infested states to be subject to restrictive quarantines to prevent further spread of the insect. Thus, our nursery, Christmas tree, and lumbering industries could be heavily impacted.

When gypsy moth caterpillars are very numerous, they can be a nuisance to homeowners, crawling over buildings, vehicles, roads, and lawn furniture. Some people suffer allergic reactions when they contact hairs from the caterpillar.

Life Cycle

The gypsy moth goes through four life stages: **egg**, **larva** (caterpillar), **pupa**, and **adult moth**. It has one generation per year and overwinters in the egg stage. Each female lays 50 to 1,000 **eggs** in one mass, which is covered with velvety golden or buff colored hairs from the female's abdomen. The egg mass is about 3/4 inches wide and 1 to 1 1/5 inches long and may be attached to trees (Figure 1), logs, rocks, buildings, toys, or on outdoor household articles or vehicles.

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Caterpillars hatch from eggs in mid-April to mid-June. When about half-grown the caterpillar acquires five pairs of blue bumps and six pairs of red bumps on its back. These blue and red bumps distinguish the gypsy moth caterpillars from other kinds of hairy caterpillars. The full-grown caterpillar (Figure 2) is about 1 1/5 to 2 inches long.

In July the caterpillar transforms into a nonfeeding stage called the **pupa** (Figure 3). The adult moth develops inside the hard, dark-brown pupa. The pupa is attached to solid objects by several strands of silk, often with the last skin shed by the caterpillar attached to its pointed end.

Adult moths begin to emerge in late July. The female moth (2-inch wing span) is white with brown zigzag markings on its wings (Figure 4). The male moth (Figure 5) is smaller (1 1/5-inch wing span) with mottled brown wings. It can be recognized by two feather-like antennae on its head. Adult moths do not feed. They live for about one week, during which time the sexes mate. Females lay eggs during August and early September starting the cycle over again.

How can you help stop the gypsy moth?

1. Report suspected gypsy moth life stages to the Idaho Department of Lands.
2. Encourage anyone you know who has moved here recently from the northeastern U.S. to contact the Idaho Department of Lands for a **free inspection** of outdoor household articles and recreational vehicles.
3. Cooperate with the Idaho Department of Lands gypsy moth survey staff when they request permission to place traps each summer.
4. Help restrict movement of the gypsy moth by not moving wood products, firewood, plant material, outdoor household articles, or recreational vehicles out of gypsy moth infested areas without certification.

Principal control techniques

The principal control techniques and/or tools currently available for use against the gypsy moth include chemical and biological pesticides and insect growth regulators. Synthetic reproductions of chemicals produced by moths to convey messages **(pheromones or semiochemicals)** can be used as baits in traps for mass trapping. In this procedure, small cardboard traps are put out at three to nine per acre to catch the male moth before it mates, thus disrupting the reproduction cycle. These same traps are also used to survey for the presence and intensity of gypsy moth populations.

These techniques may be used independently or in conjunction with each other **(integrated control)**.

Tree species not favored by the gypsy moth include ash, true firs, cottonwood, catalpa, cedar, dogwood, sycamore, rhododendron, and tulip poplar.

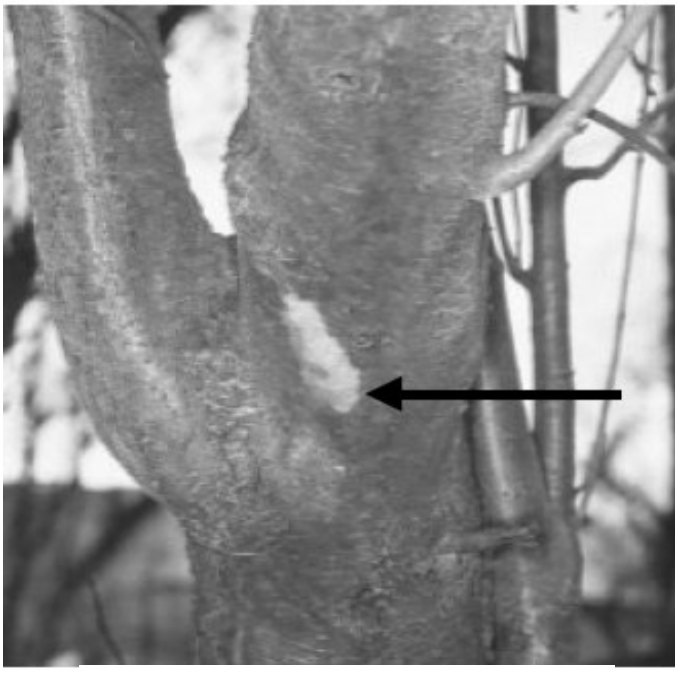

Figure 1 - Gypsy moth egg mass

Figure 2 - Full grown gypsy moth caterpillar

Figure 3 - Gypsy moth pupa

Figure 4 - Gypsy moth female

Figure 5 - Gypsy moth male

IDAHO DEPARTMENT OF LANDS

FOR MORE INFORMATION CONTACT ANY IDAHO DEPARTMENT OF LANDS PRIVATE FORESTRY SPECIALIST

Area Office	Location	Phone
Priest Lake	Coolin	(208) 443-2516
Pend Oreille Lake	Sandpoint	(208) 263-5104
Kootenai Valley	Bonners Ferry	(208) 267-5577
St Joe	St Maries	(208) 245-4551
Cataldo	Kingston	(208) 682-4611
Clearwater	Orofino	(208) 467-4587
Craig Mountain	Craigmont	(208) 924-5571
Maggie Creek	Kamiah	(208) 935-2141
Ponderosa	Deary	(208) 877-1121
Payette Lakes	McCall	(208) 634-7125
Southwest	Boise	(208) 334-3488
South Central	Gooding	(208) 934-5606
Eastern Idaho	Idaho Falls	(208) 525-7167
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